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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/729,570	12/05/2003	Frank Bergmann	21545-US1	2111

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EXAMINER	
EPPS FORD, JANET L	
ART UNIT	**PAPER NUMBER**
1633	

DATE MAILED: 09/07/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/729,570	BERGMANN ET AL.	
	Examiner	Art Unit	
	Janet L. Epps-Ford	1633	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *05 December 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-31* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3 and 9-11* is/are rejected.

7)☒ Claim(s) *4-8 and 12-31* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *12-05-03* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. Claims 4-8 and 12-31 are objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim cannot depend from any other multiple dependent claim. See MPEP § 608.01(n). Accordingly, the claims 4-8 and 12-31 have not been further treated on the merits.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

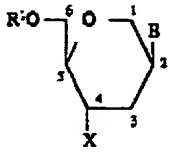
> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 1-3 and 9-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over De Clerq et al. (US Patent NO. 5607922) and Alexander et al. (US Patent NO. 5,659,023), in view of Daluge et al. (WO 9521161 A1),

5. De Clerq et al. discloses 1,5-anhydrohexitol nucleoside analogues of the following formula:

The present invention relates to 1,5-anhydrohexitol nucleoside analogues, wherein a 4-substituted-2,3,4-tri-de oxy-1,5-anhydrohexitol is coupled via its 2-position to the heterocyclic ring of a pyrimidine or purine base. They are represented by the formula I:



(I)

wherein B is a heterocyclic ring which is derived from a pyrimidine or purine base, and

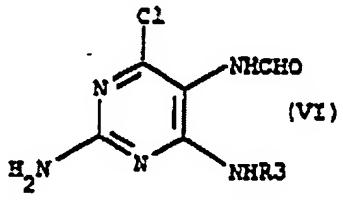
wherein X represents a hydrogen atom, azido, F, Cl, Br, I, amino —NHR^2, —$N(R^2)_2$, —OR^2, —SR^2 or CN, wherein R^1 and R^2 are the same or different and represent hydrogen, alkyl, acyl or phosphate groups;

The above structure meets all the limitations of the structure of formula I of the instant application except the above structure does not clearly set forth the -NH-$[X]_n$-R^1 moiety that extends from the C2 carbon of the claimed structure. The nucleoside analogues of DeClerq et al. comprise a B moiety, or a heterocyclic ring derived from a pyrimidine or purine base, at the C2 position, and not a -NH-$[X]_n$-R^1 moiety as set forth in the instant claims. Additionally, DeClerq et al. do not teach wherein the disclosed 1,5-anhydrohexitol nucleoside analogues can be used as a monomeric componenet of an oligomeric compound.

Alexander et al. discloses nucleotide analogues, wherein said nucleotide analogues may comprise a 1,5-anhydrohexitol sugar base, and a modified pyrimidine or purine nucleobase (see col. 1, lines 45-59). According to Alexander et al. these nucleotide analogs are useful for the labeling of oligonucleotide probes (see col. 1, lines 65-66).

Daluge et al. discloses novel pyrimidine derivatives of the following formula:

The compound of formula (III) can be used to prepare the novel intermediates of formula (VI) which represent a further feature of the invention:-



wherein R^3 may be hydrogen or any group which is not attached by a glycosidic bond.

Daluge et al. teach that R3 of the above structure is a hydroxyl or protected hydroxyl according to the following: (see page 10).

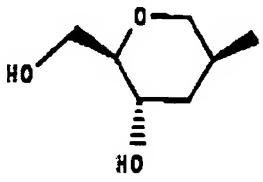
Preferred groups for R^3 are hydroxyl or protected hydroxyl.

Further preferred groups for R^3 are

a. 

;

b. H;



c. ;

It would have been obvious to the ordinary skilled artisan to modify the nucleoside analogues of DeClerq et al. and Alexander et al. with the novel pyrimidine derivatives of Daluge et al., and further to include these modified nucleosides in an

oligomeric structure as taught by Alexander et al. in the design of the compounds according to the present invention. One of ordinary skill in the art at the time of the instant invention would have motivated to make this modification since DeClerq et al. clearly teach that the B moiety of their 1,5-anhydrohexitol nucleoside analogues can be substituted with a structurally equivalent pyrmidine derivative, and the compounds of Daluge et al. are clearly pyrimidine derivatives that are useful for modifying 1,5 anhydrohexitol based sugars (see page 10 of Daluge et al.). Therefore, substituting the 1,5 andhydrohexitol sugars of DeClerq with the compounds of Daluge et al. (as an R3 group) would produce wherein the B moiety of DeClerq comprises an $-NH-[X]_n-R^1$ group, wherein n=0, and R1 is a protecting or labeling group. Moreover, one of ordinary skill in the art would have been motivated to modify the combined teachings of DeClerq et al. and Daluge et al. to include these modified nucleotide analogues in an oligomeric structure, since the teachings of Alexander et al. clearly conceive of the use of 1,5 anhydrohexitol analogues as a label for an oligomeric structure. See for example, col. 1 of Alexander et al. which discloses a 1,5-anhydrohexitol nucleoside analogue, and the broad class of compounds encompassed by formula (I) of Alexander et al., wherein it is disclosed that compounds of Formula (I) of Alexander et al. are useful for labeling an oligonucleotide probe (see col. 2).

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Janet L. Epps-Ford whose telephone number is 571-272-0757. The examiner can normally be reached on M-F, 10:00 AM through 6:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dave T. Nguyen can be reached on 571-272-0731. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Janet L. Epps-Ford, Ph.D.
Primary Examiner
Art Unit 1633

JLE